



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,914	11/13/2003	Gee-Sung Chae	8733.894.00-US	7320
30827	7590	02/11/2008		
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER NGUYEN, LAUREN	
			ART UNIT	PAPER NUMBER
			2871	
			MAIL DATE	DELIVERY MODE
			02/11/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/705,914	<b>Applicant(s)</b> CHAE ET AL.	
	<b>Examiner</b> LAUREN NGUYEN	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 and 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to **claim 9** have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 9-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sakata et al. (US 6,252,247)** in view of **Ishikura et al. (US 6,219,125)**.

4. With respect to **claim 9**, **Sakata et al.** (figures 1-3) discloses a manufacturing method of an array substrate for a liquid crystal display device, comprising: forming a first layer on a substrate (2); forming a second layer (3) on the first layer; forming a signal line by etching the first and second layers (see at least column 5, lines 11-16), wherein a top surface of the second layer (3) has a narrower width than a top surface of the first layer (2); forming a thin film transistor (1) having the signal line; and forming a pixel electrode (12) connected to the thin film transistor.

**Sakata et al.** discloses the limitations as shown in the rejection of **claim 9** above.

However, **Sakata et al.** fails to teach the first and second layers being copper compound and copper layers. **Ishikura et al.** (figures 4 and 7A-9E) teaches forming a copper compound layer (11) on a substrate; forming a copper layer (12) on the copper compound layer. Therefore, it

would have been obvious to one of ordinary skill in the art at the time of the invention to modify the signal line of **Sakata et al.** with the teachings of **Ishikura et al.** because such modification would provide a signal line capable of improving adhesive properties between metal electrodes and a substrate and capable of providing a stable electrical conduction of the metal electrodes (see at least columns 1 and 2, lines 64-68 and 1-5, respectively).

5. With respect to **claim 10, Ishikura et al.** (figures 4 and 7A-9E) discloses the copper compound layer (11) is formed in a processing chamber where a gas flows that chemically combines with the copper (see at least column 8, lines 10-15).

6. With respect to **claim 11, Ishikura et al.** (figures 4 and 7A-9E) discloses the gas is N.sub.2 (see at least column 8, lines 10-15).

7. With respect to **claim 12, Sakata et al. (figures 1-3)** discloses the signal line includes a gate line or a data line (2 and 3).

8. With respect to **claim 13, Ishikura et al.** (figures 4 and 7A-9E) discloses the copper layer (12) is formed in a processing chamber where a gas flows that does not chemically combine with the copper (see at least column 8, lines 16-20).

9. With respect to **claim 14, Ishikura et al.** (figures 4 and 7A-9E) discloses the gas is Ar (see at least column 8, lines 16-20).

10. With respect to **claim 15, Ishikura et al.** (figures 4 and 7A-9E) discloses forming a gate electrode by etching the copper compound layer and the copper layer (see at least column 6, lines 46-50).

11. With respect to **claim 16, Sakata et al. (figures 1-3)** discloses forming the thin film transistor (21) includes: forming an active layer; forming an ohmic contact layer (5-6); forming a

Art Unit: 2871

first layer (7) on the ohmic contact layer; forming a second layer (8) on the first layer on the ohmic contact layer; and forming a drain electrode and a source electrode by etching the first and second layers (figure 2a; see at least column 5, lines 11-16). **Sakata et al.** fails to teach the first and second layers being copper compound and copper layers. **Ishikura et al.** (figures 4 and 7A-9E) teaches forming a copper compound layer (11) and forming a copper layer (12) on the copper compound layer (see at least column 6, lines 46-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the signal line of **Sakata et al.** with the technique of **Ishikura et al.** because such modification would provide a signal line capable of improving adhesive properties between metal electrodes and a substrate and capable of providing a stable electrical conduction of the metal electrodes (see at least columns 1 and 2, lines 64-68 and 1-5, respectively).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2871

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lauren Nguyen whose telephone number is (571) 270-1428. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***/Lauren Nguyen/***

***Examiner, Art Unit 2871***

***/Andrew Schechter/***

***Primary Examiner, Art Unit 2871***